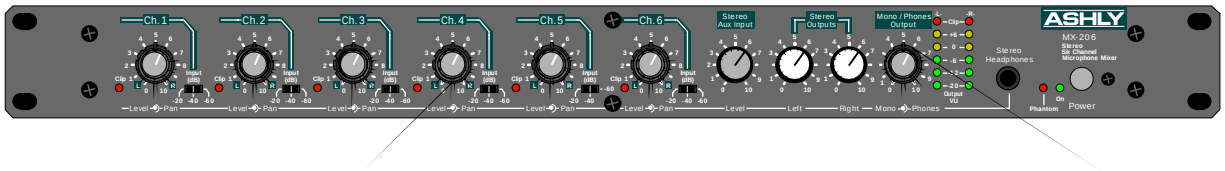
ASHLY

MX-206
Stereo
Microphone Mixer

Operating Manual



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1. INTRODUCTION

Congratulations on your purchase of an Ashly MX-206 stereo microphone mixer. In one single-space rack-mount package we have combined the features, reliability, and sonic performance you have come to expect from Ashly. This second generation mixer is similar to the MM-106, except that where the MM-106 had only one main output, the MX-206 has stereo, mono, *and* stereo headphone outputs, each with its own level control.

Other features include a 20dB input pad on each channel, switchable +48V phantom power, up to 60dB of mic preamp gain (84 dB total!), and concentric level and pan controls on each input channel.

Ultra low-noise summing amplifiers combine the channel signals for the main outputs. Two 5-segment LED arrays monitor stereo outputs. Stereo line level outputs on 1/4" connectors, a transformer isolated 600 ohm mono output on an XLR connector, and tape/CD inputs and outputs on RCA connectors come as standard equipment. Ashly still uses professional quality 16mm metal shaft potentiometers on all controls for greater accuracy and long life. Input isolation transformers are not available on the MX-206.

2. UNPACKING

As a part of our system of quality control, every Ashly product is carefully inspected before leaving the factory to ensure flawless appearance. After unpacking, please inspect for any physical damage. Save the shipping carton and all packing materials , as they were carefully designed to reduce to minimum the possibility of transportation damage should the unit again require packing and shipping. In the event that damage has occurred, immediately notify your dealer so that a written claim to cover the damages can be initiated.

The right to any claim against a public carrier can be forfeited if the carrier is not notified promptly and if the shipping carton and packing materials are not available for inspection by the carrier. Save all packing materials until the claim has been settled.

3. AC POWER REQUIREMENTS

The MX-206 mixer will perform normally from 93 to 125 volts AC, 50-60Hz (some export models are wired for 240 Volts and are labeled accordingly). Use only properly grounded AC receptacles. To reduce the risk of ground loop hum, use a central point for system AC power distribution. Power consumption is less than 15 watts.

4. CONTROLS (see next page)

4.1 Input dB (Gain)

This 3-position slide switch sets the operating level of the microphone preamp. Best signal to noise ratio is obtained with higher gain settings, however it is important to leave enough headroom (20dB) to prevent clipping. The numbers -20, -40, and -60 refer to the nominal level of the microphone signal applied to the input. In other words, more gain is needed for a weak -60dB signal than for a stronger -20dB signal, so as the switch is pushed further to the right, more gain is applied in the mic preamp circuit. The center position (-40) is a good starting point for most applications. ***Note: The Input Gain switch increases or decreases by 20dB increments. To avoid system feedback and possible driver or hearing damage, turn down the channel level control before adjusting the gain, then slowly increase level control to suitable setting.***

4.2 Input Level

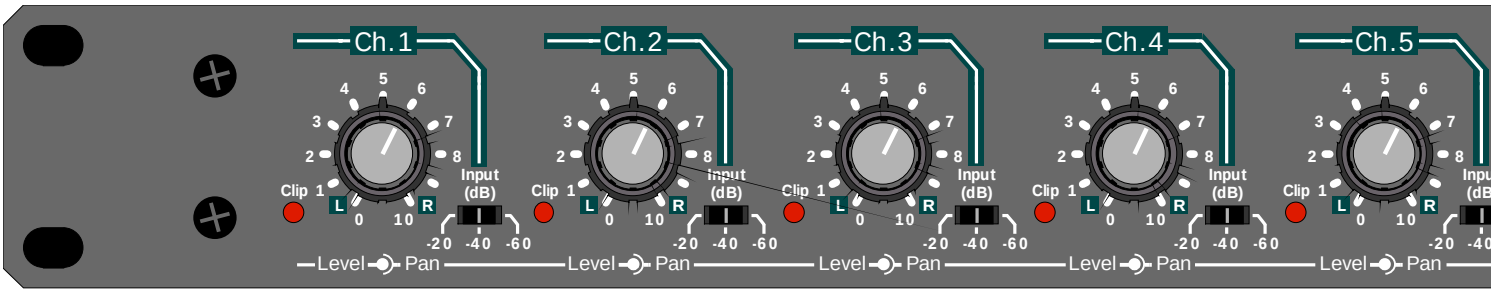
This inner concentric control determines the mix level of its respective channel. If you have insufficient signal with the level fully turned up, change the Input dB (gain) switch of that channel to a higher setting (turn down level first).

4.3 Input Pan

This outer concentric control determines the stereo position of the signal.

4.4 Clip

Each input has a red LED which will illuminate when either the mic preamp or input level circuit pass a signal which is 3dB below clipping. If the level control is turned off and the LED is still flashing, reduce the Input dB (gain) switch.



4.5 Stereo Aux Input

This control adjusts the level of the stereo signal from the RCA inputs on the back panel. The Tape/CD input should have a nominal level of -10dB.

4.6 Stereo Outputs

The Left and Right output levels are independantly controlled by these two dials. They respectively determine the signal at the 1/4" jack Main outputs.

4.7 Mono Output

This inner concentric control determines the output level of the transformer-balanced Mono Output XLR connector. Its signal is summed from the right and left mix bus, and is fully independant of the settings of the stereo output level controls.

4.8 Headphones Output Level

This outer concentric control determines the level of the stereo headphones, and is fully independant of the settings of the stereo and mono output level controls

4.9 Output Meters

Two 6-segment LED arrays show the current status of the stereo outputs. 0VU is equivalent to +4dBu (1.228Vrms).

4.10 Stereo Headphone Jack

You can monitor the stereo mix through headphones independant of all other output controls. In other words, the headphones can be used even if all other output controls are turned off.

4.11 Phantom Power Indicator

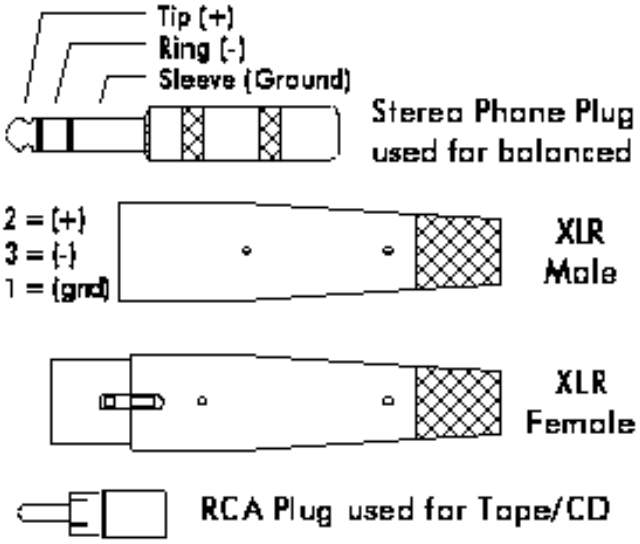
This red LED is lit when the +48V phantom power is turned on. The phantom power switch is on the back panel.

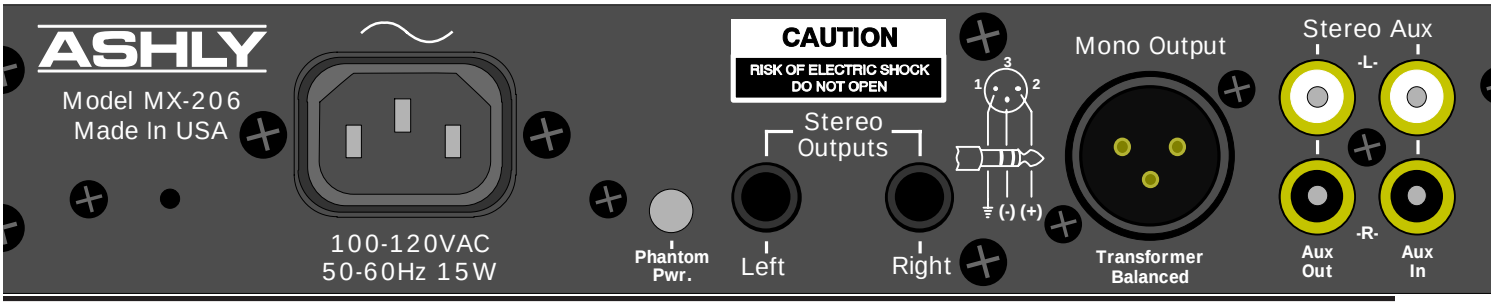
4.12 Power Switch

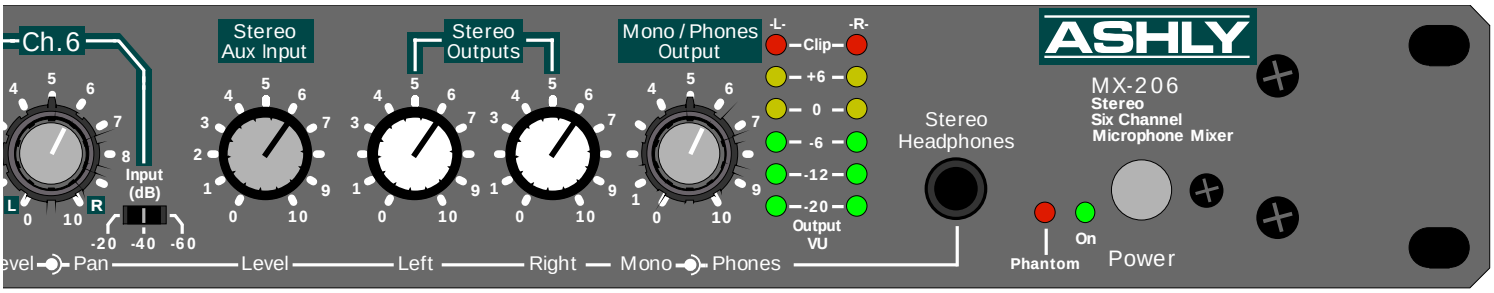
This switch turns on AC power to the mixer, lighting the green LED. If the switch is pressed but the LED is still off, check to see that the AC power cord is not detached.

5. CONNECTIONS AND CABLES

The MX-206 mixer is fitted with four types of audio connectors: 3-pin XLR type male (mono output), 3-pin XLR type female (mic inputs), tip-ring-sleeve (TRS) phone jacks, and RCA jack. Although using unbalanced tip-sleeve 1/4" plugs will work in certain applications, we recommend always using balanced TRS cabling for the stereo 1/4" jack outputs.







Two-conductor (twisted pair) shielded cable is best for all XLR type connections. Belden No. 8412, or its equivalent, is an excellent cable due to its heavy construction. This type of cable should be used for all portable applications. Snake cables containing multiple shielded pairs must be handled very carefully because the leads tend to be fragile, and a broken conductor is difficult to repair.

If low level and high level lines (e.g., microphones and mixer line outputs), or if either of these lines and speaker cables are run parallel for long distances, crosstalk may be significant. In fact, the crosstalk (signal leakage between cables) can cause an electronic feedback loop, oscillation, and possibly damage to the equipment. To minimize crosstalk, physically separate low level (microphone) cables from speaker cables by the greatest feasible distance. At any point where cables meet, run low level cables perpendicular to high level or speaker cables. If low and high level or speaker cables must be run parallel and in close proximity to one another, they should be bundled separately.

5.1 Microphone Input

The microphone input is an active balanced type with a nominal impedance of 1200 ohms. Its noise performance is best with a 200 ohm microphone. The Mic input connector is a standard 3-pin XLR female with the shield on pin 1, the (+) in-phase connection on pin 2, and the (-) out-of-phase connection on pin 3.

5.2 Input Pad

The Pad is a 20dB attenuation switch on the rear panel for use with each XLR microphone input. It should normally be left in the "out" position for best signal to noise ratio and should only be used when the input is being overdriven with the Input dB (gain) switch at its minimum setting.

5.7 Tape/CD Input - Tape Output

The stereo inputs on RCA connectors have a nominal operating level of -10dBu to match most tape decks and CD players. The tape outputs are -10dBu "pre-master", so they are not affected by the settings of the output controls.

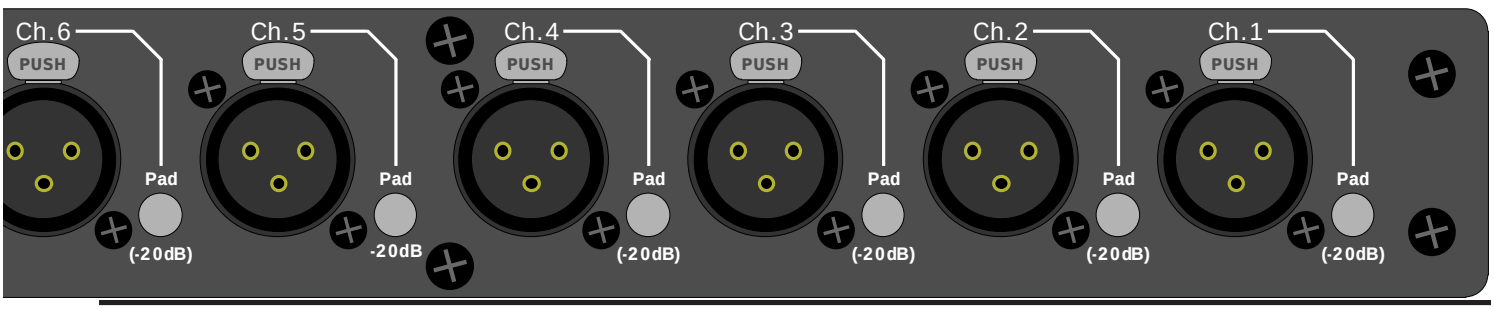
5.8 Mono Transformer Balanced Output

The mono transformer output uses a male XLR type connector and provides total isolation for 600 ohm lines. Pin 1 is ground, pin 2 is (+), and pin 3 is (-). This output is controlled by the Mono level, with a nominal operating level of +4dBu.

Note: The transformer-balanced output is designed to drive up to +24dBu into a 600 ohm load. Because of the nature of an output transformer, the output level increases as the impedance of the terminating load becomes higher than 600 ohms. Whereas a "direct-coupled" output stage like that of the stereo outputs will not change as the load changes, any transformer used in an audio path is affected by its termination impedance. Since line level inputs on audio devices are typically 10KΩ or higher, expect a slight increase (2.5dB) in output level when driving high impedance inputs with the mono transformer output. The output meters will reflect the levels present on the stereo outputs, regardless of the load on the transformer output.

5.9 Stereo Outputs

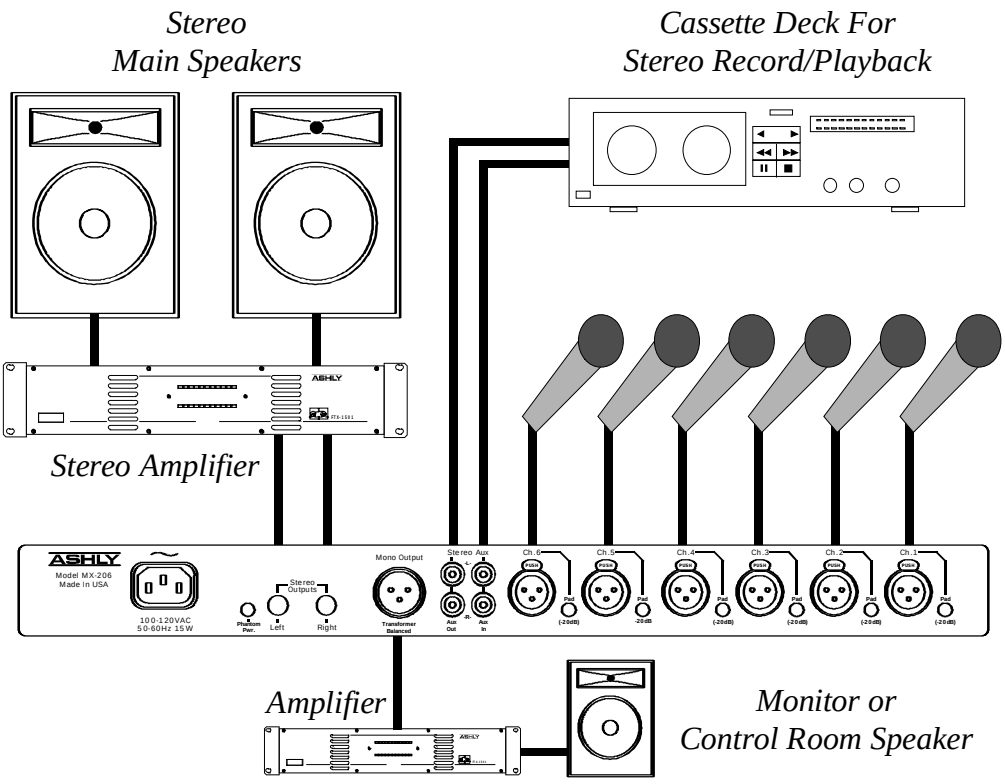
The Stereo Outputs are controlled by the left and right master. They are 1/4" pseudo-balanced TRS jacks with a nominal operating level of +4dBu into any load.

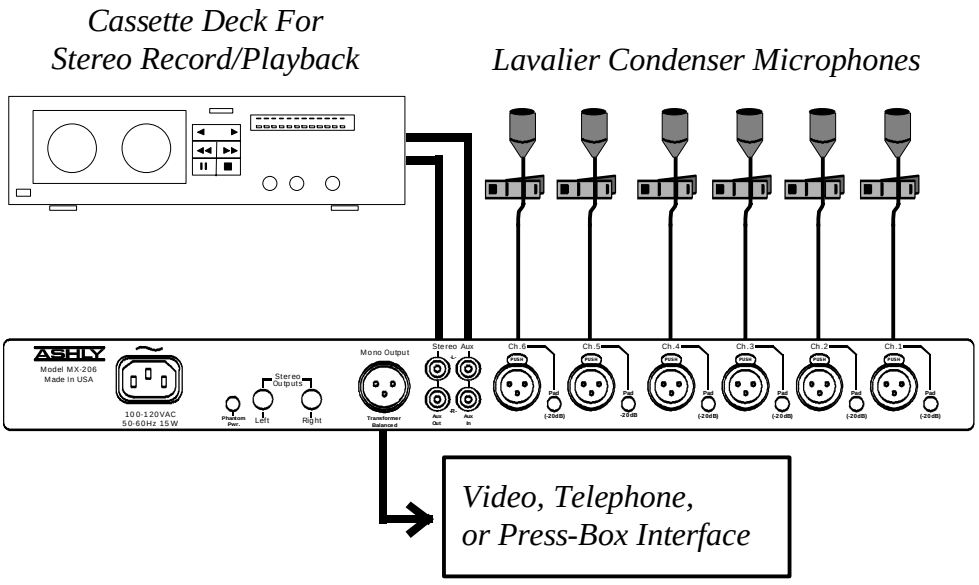


6. TYPICAL APPLICATIONS:

6.1 Small Sound Reinforcement System:

In the setup shown here, the MX-206 is used to mix typical sound sources that might be found in a small club, meeting room, school theater or similar environment. Six input channels are used for microphones for vocal or instrumental pickup. The Tape/CD In and Tape Out provide feeds to and from a cassette deck or other recording/playback device for playback of recorded material, or for making a recording of the mix. The main PA power amplifiers (or any additional equalizers or electronic crossovers which may be used) are fed from the Stereo Output connectors, while a stage or control room monitor is fed from the Mono Output.



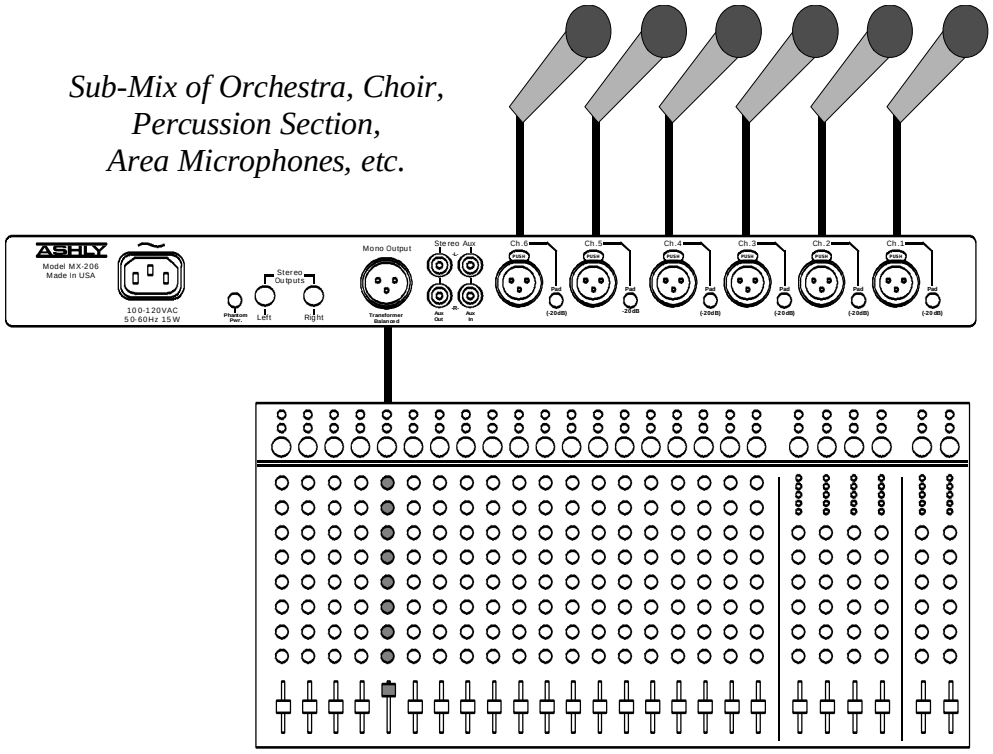


6.2 Location Recording or Broadcast Mixing:

In this setup the MX-206 is used to mix sources typically found in location recording or broadcast situations (mostly microphones). In this case, all six inputs are microphones, as would be used in a roundtable panel discussion. The Tape/CD Input receives the output of a cassette deck or other playback device, and the Tape Out provides a feed to a cassette deck or other recording device for making a recording of the mix. For live remote broadcast applications the transformer-balanced Mono Output connector can feed a suitable video, telephone or press-box interface.

6.3 Submixer In Larger Sound System:

In this application the MX-206 is used to upgrade an existing sound system by providing a vocal or instrumental sub-mix to the main mixer without tying up a number of channels on the main console. This technique allows the system input capacity to be expanded without installing more buried mic cables and without changing the mixer that everyone is already comfortable with. Use the Headphones Output to achieve a "pre-mix" before adjusting the main console.



7. TROUBLESHOOTING TIPS

7.1 No Sound

Check the AC power. Is the power switch on and its LED lit? Check the level meters. If they are operating, the problem is between the mixer and the later components in the system. If there is no meter activity, check to see you really have an input signal and that it is on the desired channel. Check that you have the master gain controls at the desired operating level.

7.2 Distorted Sound

Something is being overdriven in the signal path. If the clip indicators are active, reduce the channel gain control and/or press in the pad switch on the rear panel. If the output level meters are constantly in the red, reduce the Master gain and increase the gain of components following the mixer. There are many gain adjustments in the mixer itself and probably several others in other system components which makes it possible to overdrive an input section and then incorrectly try to reduce the gain of the output section. The best way to approach setting gains is to establish the operating level of input stages first by setting their gain as high as possible but leaving about 20dB of headroom for loud peaks, then move on to set the master gain to produce a good meter reading. Proceed to set the gain of equalizers, limiters, crossovers, and amplifiers following the mixer in the same manner, always working toward the later stages of the system.

7.3 Excessive Noise

If the noise is in the form of hiss, the problem is usually due to an input stage set up for low gain and then compensating by increasing the master gain. Check that the Pad switch is not enabled unnecessarily. Turn up the channel gain controls and reduce the master gain.

7.4 Excessive hum

This is usually caused by "ground loops" in the system wiring. A complex sound system with many sources separated by significant distance and using several power outlets has many opportunities for this problem to occur. If possible, feed everything in the system from one power source with a common ground. Use balanced input and output connections between widely separated components.

If you need help, get in touch with your Ashly dealer or call an Ashly technical service representative at 1-800-828-6308 ext. 125.

8. SPECIFICATIONS

DISTORTION
THD at +20 dBu, 20Hz-20KHz, input switch at -40dB<0.05%
IMD (SMPTE) at +20dBu, input switch at -40dB ... <0.02%

HUM & NOISE (20Hz-20KHz, input switch at -60dB)
equivalent input hum and noise .....<-129dBu
residual output noise, TRS outputs,
all levels at minimum .....<-100dBu
residual output noise, XLR outputs, ...<-90dBu
Master Level at nominal,
all Ch. Level controls at min .....<-84dBu
Master Level and one Ch. Level at nom. .....<-67dBu

MAXIMUM VOLTAGE GAIN (±2dB)
Mic Input to Master Output, 600 ohm load 84dB
Aux In to Master Output 34dB

FREQUENCY RESPONSE
20Hz-20KHz ..... +0/-0.5dB

CROSSTALK
Between any inputs or outputs
20Hz-20KHz .....<-60dB

VU METERS
Two 5-segment LED meters ..... 0VU = +4dBu

PEAK INDICATORS
Peak Clip indicator on each input channel and left and right outputs, illuminates 3dB below clipping

PHANTOM POWER
+48 VDC applied to all Mic Inputs, switchable on front panel. Maximum total current draw = 80mA. Maximum single channel current draw = 14mA. Gradual power-up and down to eliminate "pops".

SHIPPING WEIGHT
10 lbs. maximum

POWER REQUIREMENTS
120 VAC nominal, 93 VAC minimum, 50-60 Hz,
17 watts (240 VAC available)

**unless otherwise stated, specification conditions are: 150Ω source, Input set at "-60", all other controls set at nominal, XLR output into 600Ω or greater.*

9. DIMENSIONS:

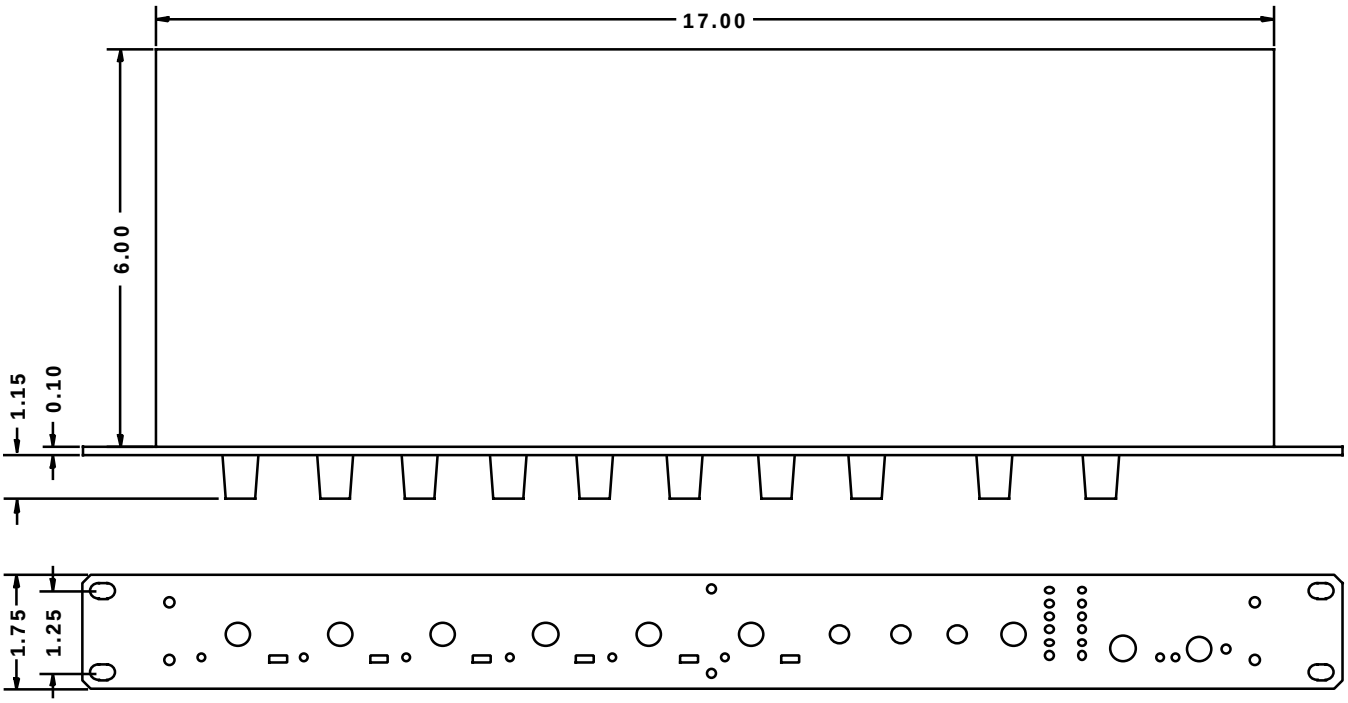


Figure 9.1: Dimensional Drawing for MX-206 Mic Mixer

10. WARRANTY INFORMATION

Thank you for your expression of confidence in Ashly products. The unit you have just purchased is protected by a five-year warranty. To establish the warranty, be sure to fill out and mail the warranty card attached to your product. Fill out the information below for your records.

Model Number _____

Serial Number _____

Dealer _____

Date of Purchase _____

Dealer's Address _____

Dealer's Phone _____

Salesperson _____

11. SCHEMATIC DIAGRAM

Schematic Diagram: MX-206 Stereo Microphone Mixwe

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